



# X-ray imaging, spacecraft nuclear fission and cosmic ray contraband detection score R&D 100 awards

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## Los Alamos and partner technologies honored for innovation and utility

LOS ALAMOS, N.M., July 8, 2013—R&D Magazine today announced the winners of its annual “R&D 100” competition, commonly known as the “Oscars of Innovation,” and three technologies from Los Alamos National Laboratory and its partners are among the honorees.

"My sincere congratulations to the winners of this year's R&D 100 Awards," said Energy Secretary Ernest Moniz. "The scientists and engineers who developed these award-winning technologies at the cutting edge facilities across our national labs are keeping Americans at the forefront of the innovation community and assuring our nation's economic competitiveness and national security."

"The innovation and creativity shown in this year's awards is truly inspiring. It gives me great confidence in the Laboratory's intellectual vitality and ongoing role in national security science. Congratulations to our researchers and their partners," said Los Alamos National Laboratory Director Charles McMillan.

### A Digital X-ray Imager for Field Use

- **MiniMAX** is a battery powered, digital x-ray imaging system that is completely self-contained, lightweight, compact and portable. Its applications include homeland security (postal inspection of suspicious packages and explosive ordnance disposal), nondestructive testing, weld inspection, disaster relief (to triage broken bones and confirm dental X-rays) and for field and veterinary medicine. (Joint entry with Los Alamos, Leica Camera AG, JDS Uniphase and JENOPTIK Optical Systems LLC.)

### Nuclear Fission for Spacecraft

- **KiloPower** uses a nuclear fission system as a heat source that transfers heat via a heat pipe to a small Stirling-engine-based power convertor to produce electricity from uranium. With KiloPower, it is possible for NASA and other government and industrial organizations to continue developing probes and spacecraft for the

exploration of deep space. (Joint entry with Los Alamos, NASA Glenn Research Center and National Security Technologies, LLC.)

### **Cosmic Ray Muons for Contraband Detection**

- **Multi-Mode Passive Detection System** (MMPDS) is a scanning device using muon particles from cosmic rays for quickly detecting unshielded to heavily shielded nuclear and radiological threats as well as explosives and other contraband. (Joint entry with Los Alamos and Decision Sciences International Corporation.)

### **But wait, there's more. . .**

Los Alamos was also a joint winner with Sandia National Laboratories, which led the work, on

- **Mantevo Suite 1.0:** This suite of software prototypes or small sections of code allows computational scientists to measure the performance of new computing environments and helps in the design of future computing applications. (Joint entry with Sandia, Los Alamos and Lawrence Livermore national laboratories, the United Kingdom-based Atomic Weapons Establishment and Santa Clara-based NVIDIA Corp.)

### **A History of Success**

Since 1978 when it first competed, Los Alamos has won 129 of the prestigious R&D100 awards that celebrate the top 100 proven technological advances of the year as judged by R&D Magazine. These technologies include innovative new materials, chemistry breakthroughs, biomedical products, consumer items, testing equipment, and high-energy physics.

In the years since 1995, winning innovations have returned more than \$45 million in funding to Los Alamos in the form of Cooperative Research and Development Agreements, Work for Others, User Facility Agreements and licenses. An estimated 80 patent awards have been associated with winners with many more patents pending. Some 25 percent of LANL's commercial licenses and 35 percent of noncommercial licenses can be attributed to R&D 100 winners.

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